

ABSTRACT OF THE DISCLOSURE

A microstructure includes a catalyst region, and a non-catalyst region proximate to the catalyst region. The catalyst region induces a chemical reaction of a fluid component when the microstructure is located within a fluid medium containing the fluid component.

- 5 The chemical reaction induces relative motion between the fluid medium and the microstructure, which can be used to provide, for example, autonomous directional movement, rotation of microgears, microfluidic devices, and novel sensor configurations. In one example, a palladium catalyst is used, and the fluid medium is an aqueous solution of hydrogen peroxide.